IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
Before the Board of Patent Appeals and Interferences

In re Patent Application of
CHAN et al.
Serial No. 09/749,303
Filed: December 27, 2000
Title: METHOD AND SYSTEM FOR ANALYZING PERFORMANCE OF A TURBINE

Atty Dkt. 839-1565
C# M#
TC/A.U.: 2123
Examiner: T. H. Stevens
Date: December 4, 2006

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

☐ **Correspondence Address Indication Form Attached.**

☐ **NOTICE OF APPEAL**
Applicant hereby **appeals** to the Board of Patent Appeals and Interferences from the last decision of the Examiner twice/finally rejecting applicant's claim(s). $500.00 (1401)/$250.00 (2401) $

☒ An appeal **BRIEF** is attached in the pending appeal of the above-identified application $500.00 (1402)/$250.00 (2402) $ 500.00

☐ Credit for fees paid in prior appeal without decision on merits -$ ( )

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901 North Glebe Road, 11th Floor
Arlington, Virginia 22203-1808
Telephone: (703) 816-4000
Facsimile: (703) 816-4100
MJK:rrr

NIXON & VANDERHYE P.C.
By Atty: Michael J. Keenan, Reg. No. 32,106

Signature: Michael J. Keenan

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Atty. Ref.: 839-1565

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Examiner: T. H. Stevens

For: METHOD AND SYSTEM FOR ANALYZING PERFORMANCE OF A TURBINE

* *

December 1, 2006

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF

Sir:

Appellants hereby appeal to the Board of Patent Appeals and Interferences from the last decision of the Examiner, dated September 7, 2006, rejecting all of the claims remaining in the above-identified application.

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(I) REAL PARTY IN INTEREST

The real party in interest is General Electric Company, a corporation of the State of New York, with a business address at 1 River Road, Schenectady, New York 12345.

(II) RELATED APPEALS AND INTERFERENCES

The appellants, the undersigned, and the assignee are not aware of any related appeals, interferences, or judicial proceedings (past or present), which will directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

(III) STATUS OF CLAIMS

Claims 1-6, 8-13, 15-25, 27-32 and 34-41 are have been rejected. Claims 7, 14, 26 and 33 have been canceled. No claims have been allowed.

(IV) STATUS OF AMENDMENTS

Appellants filed an amendment after appeal dated November 15, 2006 in order to resolve minor informalities and to adopt suggestions made by the Examiner which were to be made by Examiner's Amendment. In light of the most recent Office Action dated September 7, 2006, however, rejecting all of the application claims on a new combination of references, the Examiner's Amendment was not entered, and the objections relating to those informalities are restated in the September 7, 2006 Office Action. It is not yet known if the November 15, 2006 amendment has been entered. The next most recent amendment was filed on August 29, 2006. On the assumption that the November 15, 2006 amendment will be entered, the claims in the "Claims Appendix" are presented as amended on that date.

(V) SUMMARY OF CLAIMED SUBJECT MATTER

Briefly, the invention relates to a method and system for analyzing performance of an actual, installed power generating turbine. More specifically, the disclosed and claimed embodiment allows a manufacturer and plant operator or user (i.e., a remote client), to communicate over the Internet so as to enable the user to identify with the help of the manufacturer a configuration for the turbine that will optimize its performance. In one exemplary embodiment, the turbine optimizer system allows a user to evaluate the performance of an operating turbine with its current configuration, and the future performance of the same turbine with a modified configuration. The evaluated performance may be expressed in terms of certain operating characteristics such as output, heat rate, availability, and reliability. The turbine optimizer may also provide a comparison of these performance characteristics with the performance characteristics of similar turbines, and in that regard, the turbine optimizer may indicate both average and best performance of similar turbines.

More specifically, and in terms of independent claim 1 on appeal, the invention relates to a method in a computer system for determining performance of an installed power generating turbine, the method comprising:

receiving from an operator of the installed turbine manufacturer identification information relating to the installed turbine to be analyzed (see, for example, the Brief Summary on page 3; page 5, lines 2 and 3, and line 29 though page 6, line 10; and Figures 1, 5 and 6);

retrieving configuration information for the identified installed turbine (see, for example, the Brief Summary on page 3; page 5, lines 3 and 4; page 10, lines 17-19; Figures 1 and 6);

determining current performance characteristics of the installed turbine based on the retrieved configuration information (see, for example, page 5, lines 6-13; page 6, line 24-26; Figures 1, 5 and 6);

sending to the operator a display page for displaying the determined current performance characteristics (see, for example, page 5, lines 13-16; and line 29 through page 7, line 7; Figures 2-4 and 6);

receiving from the operator an indication of a modification to the configuration of the identified installed turbine (see, for example, page 5, lines15-19, 24-28; page 7, lines 4-7; Figures 2 and 3);

determining future performance characteristics of the identified installed turbine based on the indicated modification to its configuration (see, for example, page 5, lines 24-28; page 7, lines 23-25; Figures 2-5); and

sending to the operator a display page for displaying the determined future performance characteristics (see, for example, page 6, line 11 through page 7, line 8; Figures 2 and 4).

In terms of independent claim 11, the invention relates to a method in a computer system for determining performance of an installed power generating turbine, the turbine having a configuration, the method comprising:

receiving from an operator of the installed turbine manufacturer identification information relating to the installed turbine to be analyzed (see, for example, the Brief Summary on page 3; page 5, lines 2 and 3, and line 29 though page 6, line 10; and Figures 1, 5 and 6);

simulating a current performance characteristic based on a plurality of readings collected from the installed identified turbine (see, for example, page 5, lines 12, 13; page 7, lines 29, 30; table 1, page 8; Figures 5, 9);

receiving from an operator of the installed turbine an indication of a modification to the configuration of the identified installed turbine (see, for example, page 5, lines15-19, 24-28; page 7, lines 4-7; Figures 2 and 3);

determining a future performance characteristic of the identified installed turbine based on the indicated modifications to its configuration (see, for example, page 5, lines 24-28; page 7, lines 23-25; Figures 2-5); and

sending to the operator a display page for displaying the determined future performance characteristic (see, for example, page 6, line 11 through page 7, line 8; Figures 2 and 4).

In terms of independent claim 20, the invention relates to a method in a computer system for displaying a performance characteristic of an installed power generating turbine, the method comprising:

sending an identification of the installed turbine to a manufacturer of the turbine (see, for example, the Brief Summary on page 3; page 5, lines 2 and 3, and line 29 though page 6, line 10; and Figures 1, 5 and 6); and

receiving a display page indicating a performance characteristic of the identified installed turbine relative to the said performance characteristic for other power generating turbines (see, for example, page 6, lines 18-26, Fig. 2).

In terms of independent claim 28, the invention relates to a computer-readable medium containing instructions for controlling a computer system to determine a performance characteristic of an installed turbine, the installed power generating turbine having a configuration, by a method comprising:

receiving from an operator of the installed turbine manufacturer identification information relating to the installed turbine to be analyzed (see, for example, the Brief Summary on page 3; page 5, lines 2 and 3, and line 29 though page 6, line 10; and Figures 1, 5 and 6);

simulating a current performance characteristic based on a plurality of readings collected from an identified installed power generating turbine (see, for example, page 5, lines 12, 13; page 7, lines 29, 30; table 1, page 8; Figures 5, 9);

receiving an indication of a modification to the configuration of the identified installed turbine (see, for example, page 5, lines15-19, 24-28; page 7, lines 4-7; Figures 2 and 3); and

determining a future performance characteristic of the identified installed turbine based on the indicated modifications to the configuration (see, for example, page 5, lines 24-28; page 7, lines 23-25; Figures 2-5).

And in terms of independent claim 38, the invention relates to computer system for determining a performance characteristic of an installed power generating turbine, the turbine having a configuration, comprising:

means for receiving manufacturer identification information and an indication of a modification to the configuration of the identified installed turbine (see, for example, the Brief Summary on page 3; page 5, lines 2 and 3, and line 29 though page 6, line 10; and Figures 1, 5 and 6); and

means for determining a future performance characteristic of the identified installed turbine based on the indicated modifications to its configuration (see, for example, page 5, lines 24-28; page 7, lines 23-25; Figures 2-5).

(VI) GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

(a) The rejection of claims 1-6, 8, 9, 11-13, 15-18, 20-25, 27-29, 31, 32 and 34-40 under 35 U.S.C. § 103(a) as unpatentable over Juniper, "Pilot-Scale Evaluation of Australian Thermal Coal for Combustions and Gasification" (hereinafter "Juniper") in view of Reed et al. ("Developing Interactive Education Engineering Software for the World Wide Web with Java," hereinafter "Reed") and further in view of Barker et al. (U.S. Patent No. 6,314,422, hereinafter "Barker").

(b) The rejection of claims 10, 19, 30 and 41 under 35 U.S.C. § 103 as unpatentable over the references as applied above and further in view of Kita et al. (U.S. Patent No. 5,886,895, hereinafter "Kita").

(VII) ARGUMENT

(a) Claims 1-6, 8, 9, 11-13, 15-18, 20-25, 27-29, 31, 32, and 34-40 are patentable over Juniper in view of Reed and Barker.

For rejections based on 35 U.S.C. 103, the burden is on the USPTO to initially establish a *prima facie* case of obviousness. In re Piasecki, 745 F.2d 1468, 1471-72, 223 USPQ 785, 787-88 (Fed. Cir. 1984). The USPTO can satisfy the burden by showing that some objective teaching in the prior art, or that knowledge generally available to one of ordinary skill in the art, would have led that individual to combine the relevant teachings of the cited references to arrive at the claimed invention. In re Fine, 837 F.2d 1071, 1074, 5USPQ 2d 1596, 1598 (Fed. Cir. 1988). Before the prior art references can be combined, it must be shown that the prior art provides some suggestion or motivation to make the proposed combination. In re Rouffet, 47 USPQ 2d 1453, 1458 (Fed. Cir. 1998); see also In re Kotzab, 217 F.3d 1365, 1369 (Fed. Cir. 2000) ("Close adherence to this methodology is especially important in cases where the very ease with which the invention can be understood may prompt one 'to fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher.'")

In this case, the Examiner has not established any credible basis for the proposed combination based on suggestion or motivation contained in the prior art, but rather, has pieced together aspects of the prior art based on guidance provided by appellants' own disclosure. Moreover, even if the references are combinable for what they fairly teach, the, the end result is not what is claimed here. Thus, for the reasons

explained in more detail below, no prima facie case of obviousness under 35 U.S.C. § 103 has been made out with respect to any of the claims on appeal.

According to the Examiner, "...it would have been obvious to one of ordinary skill in the art to utilize the multi-fidelity simulation of Reed and the client information computer network of Barker in the pilot scale simulation of Juniper because Reed teaches advantageous [sic] to remove incompatibilities between computer systems, resulting in an 'explosion of accessibility (Reed: Pg. 1, Introduction section, lines 2-3). Barker provides a graphical user interface with extensions, including a tab metaphor, contact sensitive switching between tabs and dynamic soft linking between documents in a tab, which improves navigation and usability in the system (Barker: Column 1, lines 56-60)".

The Examiner provides detailed comments with respect to each claim rejected on the above-stated ground on pages 6 through 16 of the September 7, 2006 Office Action.

Appellants provide below a brief summary of the key aspects of each of the applied references, followed by responses to the Examiner's position with respect to each claim included in this ground of rejection.

The primary reference to Juniper describes pilot scale facilities designed to simulate combustion and gasification processes. According to the article, pilot scale rigs can be used to evaluate the impact of coal properties on equipment design and the operating performance of full scale plants. The article acknowledges that because of the variety and complexity of combustion and gasification processes, a complete

simulation generally is not possible. In other words, gasification and combustion processes are merely analyzed as a function of different types of fuel, including bituminous and low rank coals. For example, on page 46, the article discusses a gas turbine simulator for evaluation of the performance of slurries from brown coal and the gas produced from its gasifier facility. The simulator is designed specifically to:

operate over a range of temperatures and pressures that are representative of industrial gas turbines. . . ;

simulate the blade profile of the inlet nozzle section of a gas turbine;

measure the ash deposition on the nozzle stage during operation and ash deposition, erosion and corrosion on test probes downstream of the nozzle section; and

minimize the complexity and restrictions on operation by not having any rotating components. (emphasis added)

The article also acknowledges the difficulty in translating test results to full-scale performance, noting that, "this has proved to be hard to achieve because of the difficulty and cost of obtaining detailed measurements and operating plants." The article then goes on to describe various techniques for approximating translation to full scale performance including a multiple point correlations, direct correlations and mathematical simulations. In all cases, the goal is to provide meaningful data on the performance parameters of test coals and selected reference coals.

The simulators disclosed in Juniper are confined to pilot scale burners and furnaces (see page 43 under the section entitled "Pilot-scale facilities"), or fluidized-bed combustors (see page 44 under the section entitled "Other Rigs"), with no

evidence of any kind that a fully functional turbine (much less a power generating turbine) was constructed on any scale. The reliance by the Examiner on the language used on page 46 to an HRL "gas turbine" simulator as somehow providing response for language in various of the claims calling for an installed, power-generating gas turbine is wholly misplaced. The key term in the referenced section of Juniper is the "simulator" that includes no more than a combustion chamber and an inlet nozzle "test section" designed to "simulate the blade profile of the inlet nozzle section of a gas turbine". Note in this regard the simulator schematic in Figure 4 on page 44, that confirms the very limited nature of the simulator. This is not an installed power generating turbine as required by all of the claims on appeal, and reference is again made to page 46 where it is stated that to reduce, complexity, there are no rotating components in the test rig. Accordingly, even by the Examiner's own definition of a turbine (see page 3 of the September 7, 2006 Official Action in the section entitled "Claim Interpretation"), the HRL turbine simulator falls short in that the simulator test rig has no rotor, and no plurality of vanes or blades driven by fluid entirely filling a housing around the rotor, and of course, the rig is clearly incapable of generating power.

As is readily apparent, the Juniper article has nothing to do with analyzing performance characteristics of a full-scale, fully operational, installed power generating turbine, nor to a computer system that allows users and manufacturers to communicate in such a way as to, for example, analyze performance characteristics

based on selected possible changes or modifications to the existing turbine configuration, with or without further comparisons to similar turbines.

> The secondary reference to Reed, as explained in the Abstract on page 1, "illustrates the design and implementation of a Java applet for use in educational propulsion engineering curricula. The Java Gas Turbine Simulator applet provides an interactive graphical environment which allows the rapid, efficient construction and analysis of arbitrary gas turbine systems. The simulation system couples a graphical user-interface and a transient, space-averaged, aero-thermodynamic gas turbine analysis method, both entirely coded in the Java language. The combined package provides analytical, graphical and data management tools which allow the student to construct and control dynamic gas turbine simulations by manipulating graphical objects on the computer display screen." (emphasis added)

Thus, Reed proposes nothing more than an educational simulator wherein various engine data are inputted and a theoretical output is calculated to understand turbine behavior. There is no analysis of a real-world, installed, power generating turbine, and no suggestion of any kind that Reed's educational tool could be adapted to a real-world situation.

The tertiary reference to Barker discloses an integrated system of vehicle and diagnostic information for the purpose of providing dealerships with the information and tools necessary to diagnose and repair vehicle problems. More

specifically, Barker discloses a vehicle diagnostic system 10 that allows one or more "clients" 16 (dealership technicians) to access vehicle information via server 14 and with the aid of a vehicle diagnostic tool 18. Thus, a service technician is able to access information specific to the vehicle being diagnosed, such as service manuals, wiring diagrams, technical service bulletins, recall notices, vehicle history, parts and training (see Column 3, lines 39-43). A diagnostic element 44 allows the technician to diagnose a problem in either a symptom or system mode (see Column 33, lines 49-51 and line 60 through Column 4, line 48). The technician can start a session, suspend it, and later resume it without having to start the process over (see Column 4, line 59 through Column 5, line 39).

As explained above generally, and in further detail below, these three prior art documents as combined by the Examiner are clearly insufficient to establish prima facie obviousness under 35 USC 103 with respect to any of the rejected claims.

(i) Claims 1 and 2

The Examiner's position is fundamentally flawed in relying on Juniper as disclosing an "installed power generating turbine". As already established, Juniper discloses no more than test rigs designed to simulate certain aspects of a gas turbine, particularly to evaluate the combustion characteristics of various fuels. Note in this regard, that Juniper does not disclose a pilot-scale, but otherwise complete, turbine machine. It discloses only certain pilot-scale aspects of a turbine, such as the combustor, and in the case of the HRL simulator specifically cited by the Examiner, a combustion chamber combined with an "inlet nozzle test section". The test rigs

disclosed therein are not turbines by the Examiner's own definition and they are incapable of generating power. Thus, Juniper is wholly non-instructive with respect to the performance of an installed power generating turbine, and to the manner in which a turbine operator or user can communicate with the turbine manufacturer to optimize the performance of that turbine.

In this light, neither Reed nor Barker provides any motivation or suggestion that would have led one of ordinary skill in the art to the subject matter of claim 1. Note in this regard that there is no communication in Juniper or Reed between a user and a manufacturer relating to performance characteristics of a turbine. Only Barker involves real-world considerations, but Barker is concerned with a vehicle diagnostic system that is far removed from the field of electric power-generating turbomachinery. Moreover, Barker does not disclose or suggest receiving information from the vehicle owner relating to modifications of the vehicle; determining performance characteristics of those modifications, and then displaying those determined future characteristics, with or without further comparisons to similar vehicles. In other words, even if Barker were somehow considered relevant to the determination of performance characteristics of power- generating turbines (or even machines in general), the type of analysis and the kind of information transferred in Barker does not in any way correspond to the analysis and information transfer required by claim 1. Stated otherwise, the applied prior art, taken simply or in combination, fails to suggest even a single step of the method required by claim 1.

Claim 2 requires simulating performance characteristics based on readings taken from the installed power-generating turbine. Contrary to the position taken by the Examiner, neither Juniper nor Reed teaches this step.

(ii) Claim 3

In addition to the arguments above, with respect to claims 1 and 2, none of the cited prior art teach simulating current performance characteristics of an installed, power-generating turbine, by repeatedly simulating the performance characteristics with a varying fuel flow until a desired combustion efficiency is achieved. Again, neither Juniper nor Reed is concerned in any way with the performance of an installed power-generating turbine, and Barker does not even teach a similar fuel flow simulating step in the automotive field.

(iii) Claims 4 and 5

Since none of the applied references discloses installed, power generating turbines, they cannot alone or in combination be said to suggest adjusting initial performance characteristics based on length of service of the installed turbine (claim 4), or measuring the performance characteristics of the installed turbine (claim 5).

(iv) Claims 6 and 8

The Examiner cites pages 45 and 46 of Juniper and page 8 and Figure 7 of Reed. Neither reference, however, makes any mention of a display page that indicates average performance characteristics of other turbines (claim 6), in graph form (claim 7).

(v) Claim 9

The Examiner cites page 5 of Reed, but there is no discussion of any particular color scheme for the graph of claim 8 in the cited section.

(vi) Claims 11, 17, 18 and 28

Independent claim 11 is similar to independent claim 1, but adds the step of simulating a current performance characteristic based on plural readings collected from the installed turbine (similar to dependent claim 2), while omitting the step of sending a display page to the operator. Accordingly, appellant's arguments above with respect to claims 1 and 2 apply equally as well here, and are therefore incorporated here by reference. Claims 17 and 18 stand or fall with claim 11.

Claim 28 is generally similar to claim 11, and appellant thus regards claim 28 as standing or falling with claim 11.

(vii) Claims 12, 13, 15, 16, 29, 31, 32 and 34-37

Dependent claims 12, 13, 15 and 16 are similar to dependent claims 3, 6, 8 and 9, respectively, and the arguments presented above with respect to those claims are incorporated here by reference. Dependent claim 29 is also similar to claim 3; dependent claim 31 contains a limitation found in both claims 1 and 11; dependent claim 32 is similar to dependent claim 6; dependent claims 34 and 35 are similar to claims 8 and 9, respectively; and claims 36 and 37 are similar to claims 17 and 18, respectively. The arguments presented above relating to the various corresponding dependent claims are incorporated here by reference.

(viii) Claim 20

Independent claim 20 relates to a method for displaying a performance characteristic of an installed power generating turbine, including the steps of sending an identification of the installed turbine to a manufacturer of the turbine, and receiving a display page indicating a performance characteristic of the identified and installed turbine relative to the same performance characteristic for other power generating turbines.

The Examiner cites pages 45 and 46 of Juniper and the Reed Abstract as allegedly disclosing receiving a display page indicating a performance characteristic of an installed power generating turbine relative to other installed power generating turbines; and Column 6, line 1-5 of Barker as disclosing sending identification to the manufacturer.

As already established above, Juniper's test scale rigs do not involve turbine machines, much less installed power generating turbines. Juniper merely employs test rigs that are designed to simulate combustion in a turbine. The text on page 46 and the schematic in Figure 4 confirm the absence of basic turbine components such as a compressor, a rotor mounting plural rows of blades, a stator surrounding the rotor, and a generator. Reed discloses an educational, computer based program that permits student to construct and analyze hypothetical machines on a computer. Reed suggests nothing with respect to any modification of Juniper. In this light, Barker's disclosed flow of vehicle identification data to a vehicle dealership (which does not include

comparative data) is wholly irrelevant and suggests nothing with respect to the pilot scale test rigs of Juniper, or the hypothetical computer-generated machines of Reed.

Accordingly, no prima facie case of obviousness has been made out with respect to claim 20.

(ix) Claim 21

Dependent claim 21 adds sending an indication of a modification to the identified, installed power generating turbine, and receiving a display page indicating the performance characteristic for that turbine, with the indicated modification.

While Reed's program apparently permits the student to select various parameters during analysis of his theoretical turbine, again there is nothing in either Juniper or Reed that relates to the analysis of real world, installed power generating turbines and no combination of the cited references (including Barker, which does not allow a vehicle user to submit a proposed vehicle modification with performance characteristics taking into account the proposed modification returned to the user) produces the claimed invention.

(x) Claim 22

None of Juniper, Reed or Barker discloses or suggests providing a display page with financial information relating to a proposed modification to an installed power generating turbine.

(xi) Claims 23-25 and 27

Claims 23-25 and 27 depend from claim 20. The limitations contained therein are similar to those found in dependent claims 15, 6, 13 and 9, respectively,

and arguments presented above with respect to the latter claims are incorporated here by reference.

(xii) Claim 38

Independent claim 38 relates to a computer system for determining a performance characteristic of an installed power generating turbine. The claim includes two "means" clauses which are properly interpreted to include the disclosed means and equivalents thereto. The first means clause requires means for receiving manufacturer identification information and an indication of a modification to the configuration of the installed turbine. The second means clause requires means for determining a future performance characteristic of the installed turbine based on the indicated modification.

The Examiner again cites the same sections of Juniper and Reed, and for the same reasons already discussed herein in connection with independent claims 1, 11 and 20, the references, alone or in combination, do not suggest the claimed subject matter (either the specifically disclosed means or equivalents thereof).

(xiii) Claims 39 and 40

These dependent claims contain, in means format, limitations similar to those found in dependent claims 2 and 3 respectively, and appellant incorporates here by reference the arguments presented above with respect to the latter claims.

(b) Claims 10, 19, 30 and 41 are patentable over any combination of Juniper, Reed, Barker and Kita.

Kita discloses a dynamic plant utility optimizing system adapted to be connected to a power generating plant that has for its objective, optimum performance at minimal cost. Since each of these rejected dependent claims requires financial information, with revenue estimates based on proposed modifications to the installed turbine, the Examiner's reliance on Kita appears to be based on Kita's disclosed cost considerations in determining the optimum operating point of the plant. This disclosure notwithstanding, Kita says nothing about estimating revenues based on indicated modifications to the plant operating system. Thus, even if properly combinable with Juniper, Reed and Barker, the claimed invention is not produced.

Further discussion of Kita is warranted, however, in light of the Examiner's curious remark in paragraph 9 of the Official Action of September 7, 2006. After the formal statement of the rejection, the Examiner states that "Juniper as modified by Reed and Barker teaches most of the instant application except the installed turbine", and then mentions that Kita discloses an installed turbine. Is the Examiner conceding here that the rejection based on Juniper, Reed and Barker as applied to the claims as discussed above is otherwise insufficient and therefore improper?

On the other hand, in the detailed discussion of claims 10, 19, 30 and 41, the Examiner appears to be relying on Kita only for its use of "financial information". In any event, it is important to note that the specific steps recited in independent claims 1, 11, 20 and 28 and the "means" recitations in claim 38 are neither disclosed nor suggested in Kita. Kita's optimization system is one that is applied on-site. Many plant operators have no such system in place. The present invention allows turbine

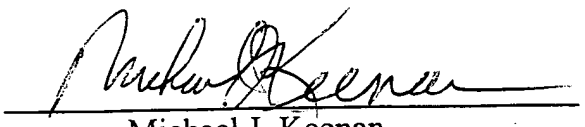
manufacturers to communicate directly with turbine users or operators (via the Internet, for example) to determine performance characteristics of the user's turbine and the impact (including projected revenues) of the proposed machine modifications. Thus, whether the Examiner is relying on Juniper or Kita for the installed power generating turbine limitation found in all of the claims on appeal, the fact remains that the applied prior art, however combined, does not suggest the claimed invention. Accordingly, the rejection of dependent claims 10, 19, 30 and 41 on the stated ground is also improper for failure to establish prima facie obviousness.

CONCLUSION

In conclusion, it is respectfully submitted that the USPTO has failed to meet its burden of establishing prima facie obviousness, In re Piasecki, supra, with respect to any of the claims on appeal. Reversal of both grounds of rejection is therefore earnestly requested.

Respectfully submitted,

NIXON & VANDERHYE P.C.

By: 

Michael J. Keenan
Reg. No. 32,106

MJK:rrr
901 North Glebe Road, 11th Floor
Arlington, VA 22203-1808
Telephone: (703) 816-4000
Facsimile: (703) 816-4100

(VIII) CLAIMS APPENDIX

1. A method in a computer system for determining performance of an installed power generating turbine, the method comprising:

receiving from an operator of the installed turbine manufacturer identification information relating to the installed turbine to be analyzed;

retrieving configuration information for the identified installed turbine;

determining current performance characteristics of the installed turbine based on the retrieved configuration information;

sending to the operator a display page for displaying the determined current performance characteristics;

receiving from the operator an indication of a modification to the configuration of the identified installed turbine;

determining future performance characteristics of the identified installed turbine based on the indicated modification to its configuration; and

sending to the operator a display page for displaying the determined future performance characteristics.

2. The method of claim 1 wherein the determining of the current performance characteristics includes simulating the current performance characteristics based on plural readings collected from the identified installed turbine.

3. The method of claim 2 wherein the simulating of the current performance characteristics includes estimating fuel flow by repeatedly simulating the current performance characteristics with a varying fuel flow until a desired combustor efficiency is achieved.

4. The method of claim 1 wherein the determining of the current performance characteristics includes adjusting initial performance characteristics based on length of time the identified turbine has been in operation.

5. The method of claim 1 wherein the determining of the current performance characteristics includes measuring the performance characteristics of the installed turbine.

6. The method of claim 1 wherein the display page includes an indication of average performance characteristics for other turbines.

7. (Cancelled).

8. The method of claim 1 wherein the display page includes a graph illustrating performance characteristics.

9. The method of claim 8 wherein the graph includes a background with colors that transition from a shade of red to a shade of yellow to a shade of green.

10. The method of claim 1 including receiving financial information relating to operation of the identified installed turbine and estimating revenue generated from the identified installed turbine with the indicated modification.

11. A method in a computer system for determining performance of an installed power generating turbine, the turbine having a configuration, the method comprising:

receiving from an operator of the installed turbine manufacturer identification information relating to the installed turbine to be analyzed;

simulating a current performance characteristic based on a plurality of readings collected from the installed identified turbine;

receiving from an operator of the installed turbine an indication of a modification to the configuration of the identified installed turbine;

determining a future performance characteristic of the identified installed turbine based on the indicated modifications to its configuration; and

sending to the operator a display page for displaying the determined future performance characteristic.

12. The method of claim 11 wherein the simulating of the current performance characteristic includes estimating fuel flow by repeatedly simulating the current performance characteristic with a varying fuel flow until a desired combustor efficiency is achieved.

13. The method of claim 11 wherein the display page includes an indication of an average for the current performance characteristic for other turbines.

14. (Cancelled).

15. The method of claim 11 wherein the display page includes a graph illustrating performance characteristics.

16. The method of claim 15 wherein the graph includes a background with colors that transition from a shade of red to a shade of yellow to a shade of green.

17. The method of claim 11 wherein the display page is a web page.

18. The method of claim 11 wherein the display page is sent via Internet.

19. The method of claim 11 including receiving financial information relating to operation of the identified installed turbine and estimating revenue generated from the identified installed turbine with the indicated modification.

20. A method in a computer system for displaying a performance characteristic of an installed power generating turbine, the method comprising:

sending an identification of the installed turbine to a manufacturer of the turbine ; and

receiving a display page indicating a performance characteristic of the identified installed turbine relative to the said performance characteristic for other power generating turbines.

21. The method of claim 20 including:

sending an indication of a modification to the identified installed turbine; and

receiving a display page indicating the performance characteristic of the identified installed turbine with the indicated modifications.

22. The method of claim 20 wherein the display page includes financial information relating to possible modifications to the identified installed turbine.

23. The method of claim 20 wherein the performance characteristic of the identified installed turbine is displayed as a graph.

24. The method of claim 23 wherein the graph indicates the performance characteristic for other turbines.

25. The method of claim 24 wherein the graph includes an indication of an average performance characteristic for other turbines.

26. (Cancelled)

27. The method of claim 23 wherein the graph includes a background with colors that transition from a shade of red to a shade of yellow to a shade of green.

28. A computer-readable medium containing instructions for controlling a computer system to determine a performance characteristic of an installed turbine, the installed power generating turbine having a configuration, by a method comprising:

receiving from an operator of the installed turbine manufacturer identification information relating to the installed turbine to be analyzed;

simulating a current performance characteristic based on a plurality of readings collected from an identified installed power generating turbine;

receiving an indication of a modification to the configuration of the identified installed turbine; and

determining a future performance characteristic of the identified installed turbine based on the indicated modifications to the configuration.

29. The computer-readable medium of claim 28 wherein the simulating of the current performance characteristic includes estimating fuel flow by repeatedly simulating the current performance characteristic by varying fuel flow until a desired combustor efficiency is achieved.

30. The computer-readable medium of claim 28 including receiving financial information relating to operation of the identified installed turbine and estimating revenue generated from the identified installed turbine with the indicated modification.

31. The computer-readable medium of claim 28 including sending a display page for displaying the determined future performance characteristic.

32. The computer-readable medium of claim 31 wherein the display page includes an indication of an average for the performance characteristic for other turbines.

33. (Cancelled)

34. The computer-readable medium of claim 31 wherein the display pages includes a graph illustrating the performance characteristics.

35. The computer-readable medium of claim 34 wherein the graph includes a background with colors that transition from a shade of red to a shade of yellow to a shade of green.

36. The computer read-able medium of claim 31 wherein the display page is a web page.

37. The computer-readable medium of claim 31 wherein the display page is sent via Internet.

38. A computer system for determining a performance characteristic of an installed power generating turbine, the turbine having a configuration, comprising:

means for receiving manufacturer identification information and an indication of a modification to the configuration of the identified installed turbine; and

means for determining a future performance characteristic of the identified installed turbine based on the indicated modifications to its configuration.

39. The computer system of claim 38 including:

means for simulating a current performance characteristic based on various readings collected from the identified installed turbine.

40. The computer system of claim 39 wherein the means for simulating the current performance characteristic includes means for estimating fuel flow by repeatedly simulating the current performance characteristic by varying fuel flow until a desired combustor efficiency is achieved.

41. (Previously Presented) The computer system of claim 38 including means for receiving financial information relating to operation of the identified installed turbine and means for estimating revenue generated from the identified installed turbine with the indicated modification.